

Southeast Data, Assessment and Review (SEDAR)
Data Workshop on Vermilion Snapper

Florida Marine Research Institute
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March 6-7, 2003

Steve Turner opened the meeting by reviewing the agenda and the objectives of the workshop. The major objectives were to review the available information on vermilion snapper and to consider additional information which might be useful in developing the next stock assessment.

The previous assessment as reported by the Reef Fish Stock Assessment Panel from the September 2001 meeting was briefly reviewed. Catch data indicated declines in the commercial and recreational fisheries since the high of about 3 million pounds (mp) in 1993 and 1994. In the last assessment conducted in 2001, the three indices of abundance based on fishery dependent data (western gulf headboat, eastern gulf headboat, and commercial handline) indicated declines in catch-per-unit-effort (CPUE). Declines were most notable in the eastern gulf headboat index. A fishery independent index (considered an index for younger vermilion) showed lower catch rates in the late 1990s (1996-1999) than in most of the early 1990s (1990-1995); that index was developed from SEAMAP trawl surveys and was used in a sensitivity analysis.

Two different assessment models were used to estimate the status of the vermilion snapper resource; a virtual population analysis (VPA) and a production model analysis. The VPAs displayed a broad range of outcomes regarding the stock size with respect to the minimum stock size threshold (some indicating the stock was in good condition and others that it was overfished), while both the production model and the VPAs indicated that overfishing was occurring. One weakness in the data sets used in the assessment was the paucity of age information from the western Gulf.

Biological Information

Stock structure

Terri Bert presented a report (Schwartz and Bert 2003) on preliminary results of research on the stock structure of vermilion snapper based on genetic information. Samples were taken from the eastern and western Gulf as well as from the Florida Keys, the east coast of Florida, North Carolina, and Venezuela. Very few samples (<10) have been collected to date from some locations. Based on preliminary data, the Venezuelan samples (n=5) were different from the U.S. samples, and within the U.S., the western Gulf samples (n=4) were different from the other samples. The Panel recommended that sample sizes be greatly increased at least for the lightly sampled locations and that inter-year class samples be collected so that these patterns can be adequately tested. Jim Cowan indicated that he had collaborated in a genetics study conducted by John Gold for

red snapper that showed genetic differences between year classes. He wondered if this might be the case for vermilion snapper. He also indicated that otolith microchemistry might be an alternative way to examine stock structure.

Habitat and Ecology

Bob Shipp reported that vermilion snapper are more structure oriented than red snapper, at least at small sizes. Some reported that mid-sized vermilion snapper are often associated with rocky bottom, and larger sized vermilion are associated with hard bottom. Bab Zales indicated that the half-day headboats often catch vermilion snapper off the Florida panhandle between 50 to 100 feet and indicated that larger vermilion can be found in deeper waters in that region. He thought the bottom type was probably important to where this species is located. Eric Schmidt indicated that off west Florida he saw few large fish until he got out to the 40 fathom break. In the deeper waters, he was able to target areas with larger fish.

Jim Cowan reported that no vermilion snapper had been found in the thousands of red snapper stomachs his research team had examined.

Ageing samples

Bob Allman reviewed the available aging data (Allman *et al.* 2003). He showed that there were a relatively low number of unread otoliths from 1994 to 1999 in addition to the roughly 3000 otoliths used in the previous assessment (primarily from the eastern Gulf). From the year 2000, about 1100 otoliths are available which have not been aged (about 440 have been aged). Otoliths have been collected from about 4,400 fish in 2001 and 2002. Of these otoliths, 91% were from the Florida and 72% were from the commercial fishery. He was also working up about 680 otolith samples collected by Allyn Johnson from the early 1990s. Peter Hood wondered if otoliths from previous Gulf studies, particularly from the western Gulf in studies by Zastrow and Barber were available. Jim Cowan indicated he would contact Colleen Zastrow about the whereabouts of the otoliths she examined. NOAA Fisheries personnel will try to arrange for sample collections in the western Gulf by port samplers and through the Gulf States FIN. Cowan wondered if age-length keys could be used even though length-at-age data were so variable.

Catch and Fishery Information

Shannon Cass-Calay reviewed updated catch data. The decline in commercial catches from 1994 through 1999 continued in 2000 and 2001 (Figure 1). The recreational landings estimated by the MRFSS were somewhat higher in 2001 and 2002 than in the late 1990s. No new estimates were available for headboat landings. The catch data presented covered 1950-2001. The 2001 assessment reported catches from 1962-1999 (recreational catches from 1979-1999) but used catches only from 1986 and later in the production modeling because of unrealistic results for 1980-1985. It was suggested that

consideration be given to using catches from before 1986 in the next assessment if reasonable estimates can be obtained.

Fishermen reported that, the vermilion snapper fishery started to increase in 1981 when Vietnamese-American fishermen developed a market. In addition, about this same time the 12 inch minimum size limit was implemented for red snapper. This meant that red snapper fillet sizes were larger making the smaller vermilion snapper (plate sized) more desirable for restaurant fare.

Fishermen John Rawlings and Matt Murphy indicated that some of the variability in the landings may have been due to storm events. Both fishermen and scientists reported that major storms can move fish long distances. Fishermen believed that this occurred in 1985/86 and 1992/93 when fish were thought to have been transported by storms from Mexican to Texas waters. The fishermen indicated that storm events were thought to remove accumulated sediment around wrecks and uncover hard bottom, thus providing increased habitat for concentrating fish. Texas fishermen also indicated that vermilion snapper were most available in the summer, but other species are generally targeted at this time by recreational fishermen.

Fishermen identified several market variables that might affect vermilion snapper landings. Eric Schmidt indicated that in the Ft. Myers, Florida area there is only an occasional market for vermilion snapper. He can catch fish anytime he wants, but the dealers want groupers. He indicated this was also the case in Naples. Lent was identified by Matt Murphy as having a large influence on prices. If Lent occurs when the red snapper landings are prohibited, then vermilion snapper may be targeted. Many commercial fishermen will not fish for vermilion snapper unless the price is above two dollars a pound. Fishermen also indicated that price is influenced by the size of the fish. During the red snapper season, fishermen indicated that the first trip will often have a lot of vermilion snapper because they can load up with them prior to being able to fish for red snapper.

Peter Hood asked the fishermen what sort of discard rate they experienced in the fishery and what type of discard mortality was associated with discards. Fishermen indicated that vermilion snapper are an effective live bait for groupers, amberjack, and other large predators. Some fishermen estimated that the quantity of vermilion used for live bait was less than 5% of the recorded landings and that most vermilion used for live bait would be in the 10-12 inch size range. Mike Nugent indicated that with a 10-inch minimum size, there was very little discard off central Texas. Matt Murphy and John Rawlings indicated that they saw about a 15 to 18 percent discard rate. Most fish seemed to actively swim down after their swim bladder was deflated; however, the fate of those fish once they reached the bottom was unknown. Most fish were caught outside the 25-fathom contour. Bob Zales indicated that some 10 to 12 inch fish were used as bait and that small fish were in shallower waters off the Panhandle.

Indices of Abundance

Scott Nichols discussed SEAMAP data available for indices of abundance. He indicated that Lutjanid (snapper family) larval identification problems had been worked out and that a larval index could be developed from SEAMAP plankton surveys. He indicated that this work should be completed soon. Nichols also reported that the numbers of juveniles in trawl surveys was low; which might explain some of the year to year variability in the fishery independent index available for the 2001 assessment. He further reported that vermilion snapper was common in the trap and video surveys.

The SEDAR panel discussed how to identify fishing effort which might catch vermilion snapper and fishing effort targeted at other species such as red snapper. Shannon Cass-Calay indicated that the 2001 assessment used reef fish permit endorsement information and red snapper fishery status (open or closed) to attempt to classify trips into groups which might have had different catch rates of vermilion snapper. It was pointed out that the current red snapper individual fishing quota (IFQ) profile might have much of the information useful for classifying vessels and their targets. Fishermen pointed out that red snapper landings from a trip may provide useful information for defining targeting and/or vessel groups. Any commercial fishermen landing more than 200 pounds either has a permit or would be landing red snapper illegally. Mike Nugent indicated that any trip with vermilion snapper caught during the red snapper derby season by a vessel with a 2000 lb endorsement would be incidental catch. Fishermen indicated that where red snapper and vermilion snapper co-occurred, red snapper were more aggressive toward bait and were caught first. Trips made during the red snapper season by Class 1 endorsement vessels were generally shorter (generally 1-2 days) than trips that targeted vermilion snapper and that red snapper trips would be made in rougher weather. Some fishermen recommended focusing on winter catch rates of vermilion for an index of abundance because fewer interactions occur with red snapper during those months when the red snapper fishery is closed.

Recommendations

Factors identified as data needs for the next assessment included:

- a more detailed genetic analysis of the stock,
- obtaining more age data from the western Gulf,
- and gaining more information through fishery independent sampling.

Literature cited

Allman, R.J., L.A. Lombardi-Carlson, G.R. Fitzhugh. 2003. Summary of vermilion snapper otoliths archived at NMFS Panama City laboratory: for February 2003 SEDAR meeting. NOAA-Fisheries. Panama City Laboratory, Contrib. Ser. 2003-02.

Schwartz, T. and T. Bert. 2003. Preliminary assessment of genetic stock structure of vermillion snapper (*Rhomboplites aureorubens*). Special Report to the Florida Fish and Wildlife Conservation Commission. 17p.

Table 1. List of participants at the vermilion snapper section of the SEDAR March 6-7, 2003.

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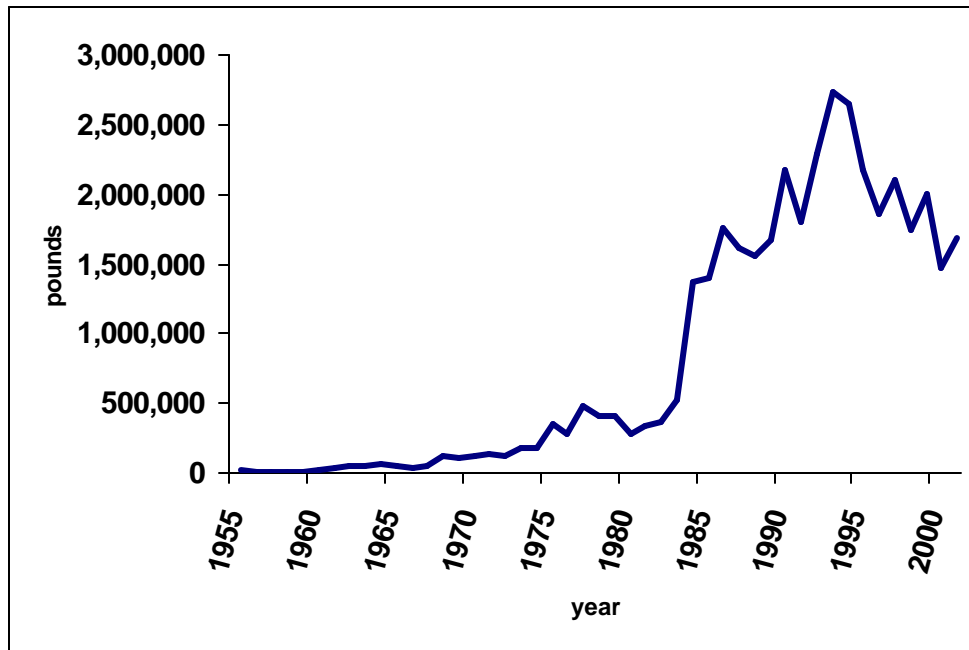


Figure 1. Vermilion snapper commercial landings recorded in the NOAA Fisheries Accumulated landings data base (1962-2001) and in Fishery Statistics of the United States (1955-1961).